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On solvability of a elliptic-parabolic problem of nonlinear filtration theory

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Abstract

© Published under licence by IOP Publishing Ltd.Existence of a strong solution of the initial-boundary value problem modeling the process of liquid filtration in an arbitrary bounded region Ω of space Rn is proven. For determining a generalized solution, the Kirchhoff transform is used, and it is assumed that the domain of the Kirchhoff function constitutes only a part of the real axis. For proving the existence theorem, the method of semidiscretization with respect to the variable t and the Galerkin method are used.

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